

SUBJECT INDEX

A

- Abarenicola pacifica*
sediment-mediated interactions
of, 227
- Abramsky, Z., 138
- Abutilon theophrasti*
elevated carbon dioxide levels
and, 172-73, 182
- Acanthaceae
pollination of, 402
- Accumulation, 424-25
economics of, 429
plant reserves and, 434-35
- Acer rubrum*
elevated carbon dioxide levels
and, 185
- Acer saccharum*
elevated carbon dioxide levels
and, 185
- Achaearea*
web designs of, 343
- Acid rain
forest decline in Europe and,
436
- Ackerly, S. C., 302
- Acock, B., 174
- Acquisitive evolution, 390-91
- Acremonium* endophytes
grasses infected by, 278, 280,
286
incorporation into seeds, 277
- Acridotheres tristis*
colonizing populations of
Roger's genetic distances
among, 143
- Adams, J., 383-84
- Adaptive radiation
of nocturnal insectivores, 65
- Ades, C., 345
- Aesculus californicus*
fruiting of
stored reserves and, 438-39
- Agassiz, L., 509
- Agelenidae
webs of, 343
liquid glue in, 344
- Ager, D. V., 521
- Agromyzid flies
diet breadth in
frequency distribution of,
261
oviposition preference of
offspring performance and,
258
- Agrostis*
endophyte infection of, 286
- Agrostis hiemalis*
endophyte infection of, 289
- Aitkin, M., 139
- Algal mats
larvae/juveniles of
survivorship of, 228
- Ali, R., 465
- Alkaloids
endophyte-infected grasses
and, 285-86
- Allen, L. H. J., 174
- Allometry, 154
- Alpha diversity, 525
- Alsophila pometaria*
clones of
larval growth of, 253-54
- Altruistic trait models
dispersal and, 453
- Amaranthus*
elevated carbon dioxide levels
and, 182
- Amaranthus retroflexus*
elevated carbon dioxide levels
and, 182
- Amaurobiidae
webs of, 343
zig-zags in, 346
- Amaurobius*
webs of
zig-zags in, 346
- Ambrose, W. G. Jr., 224, 229,
232
- Ambrosia beetles
diet breadth of, 257
- American beech
elevated carbon dioxide levels
and, 189
- Amino acids
as overwinter nitrogen re-
serves, 426
- Amphibians
Permian mass extinction and,
75
- Amphipods
direct interactions of, 222
larvae/juveniles of
survivorship of, 228
- Anacardiaceae
pollination of, 405
- Anapids
horizontal orbs of, 354
- Andira inermis*
pollination of, 403, 411
- Andrenidae
pollination by, 403
- Andropogon virginicus*
elevated carbon dioxide levels
and, 183-84
- Anelosimus jucundus*
web design of, 343
- Angiosperms
appearance of, 527
- Annonaceae
pollination of, 405, 410
- Antelopes
distribution of
correspondence analysis
and, 146
- Anthophoridae
pollination by, 403
- Anthropoids, 205
monophyly of, 198, 204
SINES and LINES of, 210-12
- Ants
polyphagy of, 257-58
- Anurans
adaptive radiations of, 65
- Aphids
diet breadth of, 257
host preferences of
negative genetic correla-
tions in, 253
ovipositing
competition and, 260
host preferences of, 252
- Apidae
pollination by, 403
- Apis dorsata*
pollination by, 409
- Apis indica*
pollination by, 409
- Apocynaceae
pollination of, 404
- Apomixis, 411
- Apple maggot
host acceptance of, 247
- Araceae
pollination of, 405, 410
- Arachevaleta, M., 283
- Arachnids
history of, 527-29
insectivorous, 64
- Araneids
web designs of, 343
yellow silk of, 344
- Araneoids
orb construction of, 345
web characters of, 342

- Araneus*
 webs of
 tensions on radii in, 351
 wind damage and, 351
Araneus atrihaustula
 elongate webs of, 359-60
Araneus expletus
 yellow silk of, 344
Araneus sexpunctatus
 orbs of
 tensions in, 351
Araneus trifolium
 orbs of
 prey escape and, 348
 Arcese, P., 472
 Archaeogastropods
 differential extinction in, 73
Architis
 double sheets of, 360
 Arctic tundra
 elevated carbon dioxide levels
 and, 177-79
 endophyte infection in, 290
Arctium tomentosum
 nutrient storage in, 434
Arenicola marina
 browsing predation and, 232
Argiope
 prey of, 349
 stabilimenta of, 358
 webs of
 wind damage and, 351
Argiope trifasciata
 orbs of
 prey escape and, 348
Aristelliger, 60
Aristelliger lar, 64
Aristolochia
 pollination of, 405
Armandia brevis
 sediment-mediated interactions
 of, 225-26
 Armstrong, J. E., 409
 Armstrong, R. A., 386
 Aroids
 pollination of, 405
Arvicola terrestris
 dispersing
 predation of, 469
 Asmussen, M. A., 462
 Assem, J. van den, 37
Aster pilosus
 elevated carbon dioxide levels
 and, 183-84
 Astrochilidae
 web designs of, 343
 Asymmetric relatedness
 sex allocation and, 46-48
 Atchley, W. R., 153
Atkinsonella, 276
 grasses infected by, 278, 282
Atkinsonella hypoxylon
 grasses infected by, 287-88
- Atwood, K. C., 377, 379-80,
 392
 Ausich, W. I., 523
 Austin, M. P., 152
Austrochilus
 web designs of, 343
 Auxin
 in *Balansia epichloe* cultures,
 283
 Avian brood parasitism, 481-502
- B**
- Baboons
 sex allocation in
 male-biased, 42
 Bacastow, R., 176
 Bacteria
 acquisitive evolution in, 390-
 91
 mutation rate for
 selection for, 391-92
 natural selection in, 373-94
 laboratory environments
 for, 374-77
 nonsynonymous to syn-
 onymous nucleotide
 changes in
 ratio of, 389
 periodic selection in, 377-85
 baroque model of, 384-85
 batch culture and, 379-81
 biotic interactions and, 385
 classical model of, 378-79
 continuous culture and,
 381-84
 environmental complexity
 and, 385-88
 populations of
 clonal structure of, 4
 recombinational events in, 4
 Bacteria-detrivore interactions,
 93-122
 model selection and develop-
 ment for, 95-110
 Baker, R. R., 451
Balansia, 276
 grasses infected by, 278
Balansia cyperaceum
 grasses infected by, 278-79
Balansia cyperi, 277
 grasses infected by, 278, 280-
 81, 287
Balansia epichloe
 cultures of
 auxin in, 283
 grasses infected by, 278, 280
Balansia henningsiana
 grasses infected by, 280-82,
 287
Balansia obiecta
 grasses infected by, 278, 280
- Balansia pallida*
 grasses infected by, 287
Balansia strangulans
 grasses infected by, 280
Baiaopsia, 276
 Bald eagles
 sex-biased brood reduction in,
 48
 Balkau, B. J., 462
 Bambach, R. K., 516, 521-23,
 525
 Barata, J. L., 356
 Bark beetles
 diet breadth of, 257
 Barnsley, M. F., 300
 Baross, J. A., 93-122
 Batch culture
 natural selection in bacteria
 and, 375
 periodic selection in bacteria
 and, 379-81
 Bateson, W., 4
 Bats
 pollination by, 401-2, 410
Battus philenor
 oviposition behavior of
 learning and, 248-49
 physiological state and,
 249-50
Bauhinia
 pollination by, 401
 Bawa, K. S., 399-417
 Bazzaz, F. A., 167-90
 Beach, J. H., 406
 Beaman, R. S., 405
 Bees
 pollination by, 403-4, 409-
 10
 Beetles
 host preferences of
 negative genetic correla-
 tions in, 253
 pollination by, 405
 Behrensmeyer, A. K., 522
 Bengtsson, B. O., 464
 Benson, R. H., 82, 308
 Benthic communities
 spatial complexity in, 523
 Berger, P. J., 460, 469
 Bemays, E. A., 255, 262
 Beta diversity, 524-25
 controls on, 525
Betula nana
 elevated carbon dioxide levels
 and, 178
Betula papyrifera
 elevated carbon dioxide levels
 and, 185
 Biennials
 stored reserves in
 seed output and, 438
 Billings, W. D., 177
 Bingham, G. E., 174

- Biogeography**
 historical, 62
 island, 83
 nocturnal insectivores and, 57-67
 vicariance, 59-60
- Biology**
 evolutionary, 320
 functional, 320
 historical
 function and, 319-34
- Bioturbators**
 sediment-mediated interactions of, 226-27
- Birds**
 brood parasitism in, 482
 insectivorous, 64
 parasitism in
 interspecific, 482-83
 intraspecific, 482-83
 pollination by, 402-3
 sex allocation theory for, 13-51
- Bivalves**
 exploitative competition among, 223-24
 Mesozoic diversity of, 86
- Blakea**
 pollination of, 402
- Boag, D. A.**, 469
- Bock, W. J.**, 319, 324
- Bodmer, W. F.**, 24
- Bombacaceae**
 pollination by, 401
- Bookstein, F. L.**, 300, 302-3, 309-11
- Boomsma, J. J.**, 33
- Bootstrapping**, 148
- Boragioceae**
 pollination of, 405
- Bortolotti, G. R.**, 48
- Bottjer, D. J.**, 523, 532
- Bouteloua gracilis**
 elevated carbon dioxide levels and, 180
- Boyce, C. C. K.**, 469
- Boyce, J. L.**, III, 469
- Boyce, M.**, 135
- Boyle, S. M.**, 557
- Brachiopods**
 Mesozoic diversity of, 86
 Permian mass extinction and, 70-73
- Bradshaw, A. D.**, 280
- Brenchley, G. A.**, 226-27
- Bromeliaceae**
 pollination of, 403
- Bromus tectorum**
 elevated carbon dioxide levels and, 180
- Brood parasites**
 generalists vs. specialists, 483
- Brood parasitism**, 481-502
 egg mimicry and
 host counterdefenses to, 490-91
 frequency of, 484-85
 host egg rejection and, 486-88
 lack of, 494-96
 origin of, 488
 parasitic counterdefenses to, 488-90
 host losses due to, 483-84
 nestling stage and
 adaptations during, 491-92
- Brooke, M. De L.**, 489, 491, 496-98
- Brooker, L. C.**, 490
- Brooker, M. G.**, 490
- Brower, J. C.**, 303
- Brower, L. P.**, 260
- Brown, J. L.**, 44
- Browsing predation**, 232-33
- Bruchid beetle**
 oviposition behavior of
 physiological state and, 249
- Bryozoans**
 Permian mass extinction and, 70-72
- Bufonidae**, 59
- Bull, J. J.**, 33, 37, 40-41, 458
- Bulmer, M. G.**, 40-41, 43
- Burgin, A. B.**, 469
- Burnham, L.**, 527
- Bursaceae**
 pollination of, 403, 405
- Bush babies**
 sex ratio in
 male-biased, 23-24
- Butterflies**
 diet breadth of, 256
 host preferences of
 negative genetic correlations in, 253
 host specificity of, 261
 pollination by, 405
- C**
- Caesalpinaceae**
 pollination by, 401
- Calathea ovoidensis**
 pollination of, 411
- Callianassa californiensis**, 222
- sediment-mediated interactions of**, 226-27
- Calligrapha beetles**
 host specificity of, 261
- Callosobruchus maculatus**
 oviposition behavior of
 physiological state and, 249-50
- Calloway, C. B.**, 86-87
- Caluromys derbianus**
 pollination by, 402
- Cambrian diversification**, 513
- Cammen, L. M.**, 111
- Camp, M. J.**, 82
- Campbell, G.**, 311
- Canonical correlation**, 144
 objectives and limitations of, 157
- Carbon**
 plant storage of, 430
- Carbon dioxide**
 elevated, 167-90
 arctic tundra and, 177-79
 community and ecosystem levels and, 176-77
 dark respiration and, 169
 early perennial stage and, 183-84
 early successional community and, 180-83
 early successional trees and, 184-85
 estuarine marsh and, 179
 forest ecosystems and, 185-87
 grasslands and, 180
 interaction with environmental factors, 173-75
 photosynthesis and, 168-69
 plant growth and allocation and, 171
 plant-herbivore interactions and, 188
 plant reproductive biology and, 171-73
 plant response at population level to, 176
 plant responses to, 168-73
 regenerating ecosystems and, 180
 soil microorganisms/plant root interactions and, 187-88
 species ranges and, 188-89
 stomatal conductance, transpiration, and water use and, 170-71
 subspecific differences in response to, 175
- Carex bigelowii**
 elevated carbon dioxide levels and, 178
- Carlson, R. W.**, 181
- Carlton, G.**, 175
- Carpenter, F. M.**, 527
- Carroll, G. C.**, 280
- Catarrhines**
 gene conversions among, 209
 monophyly of, 198, 204
- Catarrhini**, 205
- Cattell, R. B.**, 308

- Cecropia obtusifolia*
elevated carbon dioxide levels and, 186-87
- Ceiba pentandra*
pollination of, 402
- Cellulose
digestion in invertebrate detritivores
microbial aid in, 115-16
- Centrolenidae, 59, 62
- Cephalopods
Permian mass extinction and, 70
- Cerastoderma edule*
sediment-mediated interactions of, 227
- Ceratonereis pseudoerythraensis*
predation of, 233
- Chao, L., 384, 391-92
- Chapin, F. S. III, 423-41
- Characters
classes of
congruence among, 328-31
correlated
analysis of, 325-28
- Charnov, E. L., 18-20, 27, 33, 36-37
- Checkerspot butterfly
oviposition behavior of
physiological state and, 250
- Chemoautotrophy, 108
- Chen caerulescens*
population attributes in
loglinear analysis and, 145
- Chesser, R. K., 464
- Chione undatella*
competitive interactions of, 223
- Chromosomes
haplodiploid type of inheritance of, 47-48
sex
population cycles in lemmings and, 40-41
- Chrysomelid beetles
susceptibility to attack, 255
- Clark, A. B., 23
- Claviceps*
grasses infected by
toxicity of, 284
- Clay, K., 275-92
- Climate
Permian mass extinction and, 76-78
- Climatic variation
biotic diversity and, 518
- Clusiaceae
pollination of, 403
- Cluster analysis, 147-48
objectives and limitations of, 158
- Clutton-Brock, T. H., 36, 49
- Clymenella torquata*
sediment-mediated interactions of, 226
- Cochran, W. G., 137
- Cockburn, A., 41
- Cockroaches
microbial symbiosis and fermentation in, 115
- Coddington, J. A., 342, 345
- Coevolution
model system for, 481-502
- Cogger, H. G., 61
- Cohen, D., 456, 458, 460
- Coleman, J., 174
- Colorado potato beetle
adult reproductive diapause in, 253
- Colwell, R. K., 259
- Cometabolism
evolution of, 386-88
xenobiotics and, 392
- Comins, H. N., 454-58, 468
- Commuto, J. A., 228, 232
- Communities
early successional
elevated carbon dioxide levels and, 180-83
species packing within, 523
stability of
plant-pollinator interactions and, 414-16
See also Marine soft-sediment communities
- Competition
marine soft-sediment communities and, 222-30
- Conifaber*
stabilimenta of, 358
- Conifers
Permian mass extinction and, 75
- Connell, J. H., 229
- Connor, E. F., 65
- Conoculus*
horizontal orbs of, 354
- Continental drift
global diversification and, 529-30
vertebrate diversity and, 528-29
- Continuous culture
natural selection in bacteria and, 375-77
periodic selection in bacteria and, 381-84
- Corals
Permian mass extinction and, 70-72
- Cordaites
Permian mass extinction and, 75
- Corophium volutator*
direct interactions of, 222
- predation of, 232
sediment-mediated interactions of, 227
size-dependent emigration of, 224
- Correlated characters
analysis of, 325-28
- Correspondence analysis, 145-46
objectives and limitations of, 157-58
- Cost-benefit analysis
bacteria-detritivore interactions and, 96-97
- Courtney, S. P., 246, 249, 261
- Cowbirds
host choice by, 493-94
parasitic system of, 483
coevolution in, 499-501
- Cox, E. C., 384, 391-92
- Coyne, P. I., 174
- Coypus
sex allocation in, 49
- Cracraft, J., 521, 529, 533
- Craig, C. L., 352, 359
- Craig, D. M., 468
- Crane-fly larvae
microbial symbiosis and fermentation in, 115
- Cretaceous-Tertiary mass extinction, 521
- Cribellates
orb construction of, 345
sticky spiral localization behavior in, 346
- Crinoids
differential extinction in, 73
Permian mass extinction and, 70
- Crocker, R. A., 222
- Crustaceans
epibenthic predation by, 231
- Cuckoos
egg mimicry among, 489
parasitic system of, 483
coevolution in, 499-501
- Cyatholipidae
web designs of, 343
- Cycadeoids
Permian mass extinction and, 75
- Cycads
Permian mass extinction and, 75
- Cyclanthaceae
pollination of, 405
- Cyclosa*
orbs of
tensions in, 351
yellow silk of, 344
- Cynomys ludovicianus*
dispersing
survival rate for, 469

- Cyperus virens*
endophyte infection of, 287
- Cyrtarachne*
web designs of, 359
- Cyrtarachne inaequalis*
frame silk of, 352
- Cyrtodactylus*, 60
- Cyrtophora*
orb design of, 342-43
- Cyrtophora moluccensis*
orbs of
prey escape and, 348
- Cyrtophora nympa*
yellow silk of, 344
- D
- Dactylis glomerata*
endophyte infection of, 287-88
- Dacus tryoni*
oviposition behavior of
physiological state and, 250
- Dalechampia*
pollination of, 410
- Danthonia spicata*
endophyte infection of, 287-88
- Dark respiration
elevated carbon dioxide levels
and, 169
- Darroch, J. N., 154, 310-11
- Darwin, C., 13, 15
- Datura stramonium*
fruit weight of
elevated carbon dioxide
levels and, 172
- Dauer, D. M., 224
- Davies, N. B., 489, 491, 496-98
- Day, R. W., 233
- Dean, A. M., 390
- Decoupling hypothesis, 334
- Deinopus*
orbs of, 343, 360
- Dendrather excentricus*
sediment-mediated interactions
of, 227
- Deposit-feeders
competitive interactions of,
224-25
- Desmodium paniculatum*
dark respiration in
elevated carbon dioxide
levels and, 169
- Detrended correspondence analysis, 145-46
- Detritivores
foregut diverticular in, 115
optimal digestion theory for,
97-98
See also Bacteria-detritivore
interactions
- Detritivory
definition of, 94-95
- Dicrostonyx torquatus*
sex ratios in
female-biased, 40-41
- DiDomenico, R., 327
- Diehl, W. W., 276-77, 280
- Digby, P. G. N., 130
- Digueta*
webs of, 343
wind damage and, 351
- Diguettidae
web designs of, 343
- Diplodactylinae, 58
- Dipluridae
web designs of, 343
- Dipodomys spectabilis*
dispersal of
habitat saturation and, 469
- Dipterocarpaceae
pollination of, 406, 409
- Dipteryx panamensis*
pollination of, 403, 411
- Dispersal
age-biased, 465-67
definition of, 451
evolution of, 449-73
group selection models of,
452-53, 468
individual selection models
of, 453-63, 469-72
inbreeding and, 463-65
sex-biased, 465-67
- Distance, 149
- Diversification
global
controls on, 529-30
- Diversity
alpha, 525
beta, 524-25
controls on, 525
Cenozoic increase in, 529
geologic history of, 509-35
Metazoan, 514-16
modeling through time, 533-34
plant, 525-27
regional species
trends in, 524-25
taxonomic
trends in, 512-21
terrestrial animal, 527-29
within-habitat
trends in, 521-23
- DNA hybridization
evolutionary rate variability
and, 548
- DNA systematics
primate evolution and, 197-213
- Dobbs, F. C., 117
- Dobson, F. S., 466-67
- Dobzhansky, 4, 10
- Donoghue, M. J., 547
- Drake, B., 179
- Drosophila*
diet breadth of, 256
- Drosophila buzzatii*
oviposition behavior of
genetic variation in, 248
- Drosophila duncani*
diet breadth of, 256
- Drosophila falleni*
diet breadth of, 256
- Drosophila melanogaster*
oviposition behavior of
genetic variation in, 248
learning and, 249
- Drosophila putrida*
diet breadth of, 256
- Drosophila subobscurata*
oviposition behavior of
physiological state and, 249
- Drosophila tripunctata*
offspring performance and,
258-59
oviposition behavior of
genetic variation in, 248
- Drug resistance
evolution of, 2
- Drymusa*
webs of, 361
- Du Bose, R. F., 10
- Duellman, W. E., 57-67
- Dullemeijer, P., 324-25
- Dumont, J., 330
- Dwarf lemurs, 198-99
- Dykhuizen, D. E., 373-94
- E
- Early successional community
elevated carbon dioxide levels
and, 180-83
- Eaton, R. C., 327
- Eberhard, W. G., 341-61
- Echinocloa crus-galli*
elevated carbon dioxide levels
and
temperature and, 174-75
- Echiurans
nitrogenous waste excretion
and egestion in, 117-18
- Eckman, J. E., 229-30
- Ecological dispersal
definition of, 451
- Ecological niche
resource use and, 149-50
- Ecology
multivariate analysis in, 129-59
special problems in, 149-58
- Ecosystems
elevated carbon dioxide levels
and, 176-87

- Edmunds, J., 359
 Edwards, A. W. F., 24
 Egg mimicry
 host counterdefenses to, 490-91
 Ehrlich, R., 307
 Eigen, M., 3
 Elephant seals
 sex allocation pattern of, 41
Eleutherodactylus, 62
Elusine indica
 elevated carbon dioxide levels and
 temperature and, 174-75
Elymus
 endophyte infection of, 286
Elymus virginicus
 endophyte infection of, 289
 Emerson, S., 334
 Emlen, S. T., 44
 Endler, J., 451
 Endophytes
 See Fungal endophytes
 Engel, H., 305
 Epibenthic predation, 230-31
Epichloe, 276
Epichloe typhina
 asexual endophytes of, 276
 grasses infected by, 279-82, 287, 289
 Ergot alkaloids
 endophyte-infected grasses and, 285-86
 Ergot fungus
 grasses infected by
 toxicity of, 284
Eriophorum
 elevated carbon dioxide levels and, 178
Eriophorum vaginatum
 growth rate of
 reserve accumulation and, 435
 Ertman, S. C., 229
 Erwin, D. H., 69-88
Erythrina
 pollination of, 403
 Escalation
 global diversification and, 530
Escherichia coli
 amino acid substitution in, 389
 beta-galactosidase gene of
 nonsense mutations in, 389-90
 colicinogenic
 frequency dependent selection in, 377
 lactose pathway in
 metabolic control theory and, 374
 naturally occurring allozyme polymorphisms in
 selective effects of, 388-90
 penicillin resistance and, 2
 polymorphism of, 4
 ribosomal RNA of
 secondary structure of, 544
 transposable elements in
 population biology of, 374
 Estuarine marsh
 elevated carbon dioxide levels and, 179
Euagrus
 webs of, 360
 Eubacteria
 genomic DNA of
 G+C content of, 393
 Eublepharidae, 58
 Euglossine bees
 pollination by, 410
 Euphorbiaceae
 pollination of, 403
Euphydryas editha
 oviposition behavior of, 258
 physiological state and, 250
Eustala
 elongate webs of, 359
 "sawtooth" orbs of, 359-60
 Evans, D. G., 305
 Evolution
 acquisitive, 390-91
 of dispersal, 449-73
 group selection models of, 452-53, 468
 individual selection models of, 453-63, 469-72
 of function, 320-22
 molecular
 gene conversions in, 209-10
 nonrandom patterns in, 207
 ontogenetic expression in, 212-13
 rates of, 208-9
 primate
 DNA systematics and, 197-213
 prokaryotic, 1-11
 rate of
 variation in, 548-59
 ribosomal RNA and, 541-60
 Evolutionarily stable strategy (ESS) model
 dispersal and, 454-59
 Evolutionarily stable strategy (ESS) theory
 sex allocation and, 45
 Evolutionary biology, 320
 Ewens, W. J., 388
 Exoenzymes
 microbial digestion and, 99-101
- F
 Fabaceae
 pollination of, 403, 410-11
 Factor analysis, 143-44
 objectives and limitations of, 156
Fagus grandifolia
 elevated carbon dioxide levels and, 185, 189
 Falconer, D. S., 50
Fecenia
 webs of
 zig-zags in, 346
Fecenia angustata
 webs of
 spacing of sticky lines in, 346
 Fedorov, A. A., 412
 Feinsinger, P., 403
 Feldman, M. W., 462
 Felsenstein, J., 548
 Ferson, S., 153, 305
Festuca
 endophyte infection of, 286
Festuca arundinacea
 endophyte infection of, 286
Festuca longifolia
 endophyte infection of, 286
Festuca rubra
 endophyte infection of, 286, 289
 Fetcher, N., 184
 Fiala, K. L., 25
Ficus
 pollination of, 405
 Fienberg, S. E., 145
Filistata hibernalis
 webs of
 zig-zags in, 346
 Finches
 parasitic, 483
 Fire
 woody species recovery from, 437
 Fish
 epibenthic predation by, 231
 Fisher, R. A., 13-20, 27, 34, 36, 38, 50, 154, 379
 Fitzpatrick, J. W., 466
 Flacourtiaceae
 pollination of, 403
 Flatfish
 major prey of, 232
 Flessa, K. W., 83, 530
 Flies
 host preferences of
 negative genetic correlations in, 253
 pollination by, 405-6
 Flint, E. P., 181
 Flounder
 prey of, 233

- Foraminifera**
 Permian mass extinction and, 70-72
Forest ecosystems
 elevated carbon dioxide levels and, 185-87
Fossil record
 bias in, 511-12
 history of life and, 510-12
Foulds, J. B., 116
Fourier analysis, 153
Fox, G. E., 544
Francis, B., 139
Frank, S. A., 13-51, 456-57
Frankie, G. W., 404, 411
Franklin, W. L., 469
Fretwell, S. D., 29, 31
Frid, C. L. J., 230
Friesan, J. A., 116
Frogs
 arboreal
 area cladogram of, 60
 nocturnal
 communities of, 61-62
 competition among, 63-64
 history of, 59-61
 species densities of, 61
 taxonomic diversity of, 58-59
Frontinella
 webs of, 361
Full, W. E., 307
Function
 evolution of, 320-22
 historical biology and, 319-34
 homology and, 322-25
Functional biology, 320
Functional data
 definition of, 318-19
Functional morphology, 317-35
Fundulus heteroclitus
 infaunal abundances and, 233
Fungal endophytes, 275-92
 clavicipitaceous, 276-77
 demography of, 286-89
 effects on host plants, 280-83
 herbivory of, 284-86
 host range of, 277-80
 toxins of, 285-86
Furnarius rufus
 egg rejection by, 489
Fusulinids
 Permian mass extinction and, 72
Futuyama, D. J., 253, 256, 261
G
Gadgil, M., 461
Gaines, M. S., 449-73
Galerucella lineola
 susceptibility to attack, 255
Gallagher, E. D., 229-30
Gallardia pulchella
 flowering of
 elevated carbon dioxide levels and, 172
Gall midges
 oviposition behavior of, 256
Garbutt, K., 175, 183
Garrett, M. G., 469
Gasteracantha
 attack behavior of, 353
 stabilimenta of, 358
Gasteracantha cancriformis
 horizontal orbs of, 354
Gaston, K. J., 263
Gastropods
 distributional patterns of
 Permian mass extinction and, 85
 epibenthic predation by, 231
 great radiation of, 521
 larvae/juveniles of
 survivorship of, 228
Gates, D. M., 176
Gaura brochycarpa
 flowering of
 elevated carbon dioxide levels and, 172
Gavis, J., 100
Gehyra, 60
Gekkoideans
 adaptive radiations of, 65
 history of, 59-61
 nocturnal
 species density of, 62
 taxonomic diversity of, 58-59
Gekkonids
 nocturnal
 species density of, 62
Gekkoninae, 58
Gekkonini, 58
Gekkonomorpha, 58
Gemma gemma
 sediment-mediated interactions of, 226
Gene frequency dynamics
 sex allocation and, 46
Genes
 evolutionary rate heterogeneity among, 551-54
Genetic asymmetry
 sex-biased dispersal and, 465
Genetic dispersal
 definition of, 451
Genetic polymorphism
 for dispersal, 462
Genetic variation
 host selection of insects and, 247-48
Gentry, A., 413
Geometrid moths
 diet breadth in
 frequency distribution of, 261
Gesneriaceae
 pollination of, 403
Gifford, R. M., 176
Gilbert, L. E., 415
Gileva, E. A., 40-41
Gilinsky, N. L., 516
Gill, D. E., 460
Gillespie, J. H., 257, 462
Ginkgoes
 Permian mass extinction and, 75
Gittins, R., 144
Global cooling
 mass extinctions and, 518
 Permian, 82-83
Global diversification
 controls on, 529-30
Glycera dibranchiata
 predation by, 231-32
Glycera striata
 endophyte infection of, 289
Goodall, C. R., 309-10
Goodman, M., 197-213
Gorillina, 206
Gosling, L. M., 31, 49-50
Goslow, G. E., 330
Gottsberger, I. S., 404
Gottschal, J. C., 386
Gould, F., 247
Gould, S. J., 86-87, 516
Gowaty, P. A., 44
Gower, J. C., 308
Graf, G., 118
Graham, M., 255
Graminoid-dominated ecosystems
 elevated carbon dioxide levels and, 177-80
Grant, J., 222
Grant, P. R., 460
Grasses
 endophyte-infected
 physiological ecology of, 282-83
 reproductive biology of, 280-82
 fungal endophytes of, 275-92
 clavicipitaceous, 276-77
 demography of, 286-89
 effects of, 280-83
 herbivory of, 284-86
 host range of, 277-80
Grasslands
 elevated carbon dioxide levels and, 180
 endophyte infection in, 290
Greedwood, P. J., 465-66
Green, P. B., 309-10
Green, R. H., 149
Greenwood, P. J., 451, 467, 470, 472
Griffith, F., 5

- Ground squirrels
 dispersing
 survival rate for, 469
Group selection
 dispersal and, 452-53, 468
Grover, J. P., 388
Grubb, P. J., 150
Gutell, R. R., 544
Gutmann, W. F., 324-25
- H**
- Haber, W. A., 404
Habitat selection
 multivariate analysis and,
 150-52
Haemophilus
 penicillin resistance and, 2
Hahnidae
 web designs of, 343
Halictidae
 pollination by, 403
Hall, B. G., 390
Hamilton, W. D., 21-23, 27-28,
 43, 47, 454-58, 468
Hansen, T. A., 518, 521, 524
Hanson, N. R., 130
Haplorhini
 monophyly of, 198
 semisuborders of, 205
Harberd, D. J., 280
Hardy-Weinberg ratio, 1
Hare, H., 28
Hargrave, B. T., 113
Harper, J. L., 153
Hartl, D. L., 374, 381
Harvey, P. H., 451
Hassouna, N., 555
Hastings, A., 457-58, 462
Hatfield, C. B., 82
Hatfield, E. B., 222
Haustoriids
 direct interactions of, 222
Hawkmoth
 pollination by, 410
Hayes, J. L., 263
Haymer, D., 388
Hebert, P. D. N., 261
Heliconia
 pollination of, 403, 410
Heliopsis virescens
 host acceptance of, 247
Helling, R. B., 385, 394
Hemicellulose
 plant storage of, 430
Hemidactylus, 59-60
Henderson, H. V., 139
Hendy, M. D., 547
Hennig, 86, 547
Herbivory
 endophyte-infected grasses
 and, 284-86
- Herennia ornatissima*
 elongate webs of, 359
Hermaphroditism, 18
Hersiliids
 webs of
 nonsticky lines in, 347
Hessian flies
 oviposition behavior of, 256
Highsmith, R. C., 227-28
Hines, A. H., 228
Historical biogeography, 62
Historical biology
 function and, 319-34
History of life
 fossil record and, 510-12
Hoffman, A., 521, 534
Hoffmann, A. A., 251
Holloway, J. D., 261
Holothuroids
 microbial symbiosis and
 fermentation in, 115
Holser, W. T., 80
Holt, R. D., 457-58, 462
Hominidae
 subfamilies of, 206
Hominina, 206-7
Homininae, 206
Hominini
 subtribes of, 206
Hominoids
 monophyly of, 198, 204
Homology
 function and, 322-25
Honeycutt, R. L., 541-60
Honeyguides
 parasitic, 483
Honeysuckle
 elevated carbon dioxide levels
 and, 189
Hopkins Host Selection Principle, 249
Horseshoe crabs
 epibenthic predation by, 231
Horvitz, C. C., 411, 417
Host aggression
 parasites and, 485-86
Host defenses
 parasitic counterdefenses and,
 485-92
Howard, W. E., 451
Howe, H. F., 415
Hulberg, L. W., 230
Hulberg, P. K., 226
Hummingbirds
 pollination by, 402-3, 408,
 410
Humphries, J. M., 311
Hungate, R. E., 95-96
Hurley, J. R., 308
Hydrobia totteni, 222
Hydrobia ventrosa
 competitive interactions of,
 224
- Hylidae, 59
Hylleberg, J., 117
Hylobatinae, 206
Hymenoptera
 brood parasitism in, 482
 pollination by, 411
Hyperoliidae, 59
Hypochilids
 webs of
 nonsticky lines in, 347
Hyptiotes
 reduced orbs of
 sticky "spiral" construction
 in, 360
 webs of
 prey acquisition and, 352
- I**
- Ilyanassa obsoleta*, 222
Imbrie, J., 530
Inbreeding
 dispersal and, 463-65
Inbreeding avoidance
 sex-biased dispersal and, 465
Indirect ordination, 146
Individual selection
 dispersal and, 453-63, 469-72
Infauna
 predatory, 231-32
Inger, R. F., 63
Insect herbivory
 endophyte-infected grasses
 and, 284-85
Insectivores
 nocturnal
 adaptive radiations of, 65
 biogeography of, 57-67
 communities of, 61-62
 competition among, 63-64
 history of, 59-61
 species densities of, 61
 taxonomic diversity of, 58-
 59
Insect oviposition
 physiological state and, 245-
 46
Insects
 history of, 527-29
 See also Phytophagous insects
Intrasexual competition
 sex-biased dispersal and, 465
Invertebrates
 bottom-dwelling
 commensalism of aerobic
 microbes with, 109-10
 marine
 fossil record of, 510-11
 pollination by, 403-6
 iridium
 Permian mass extinction and,
 81-82
Irvine, T. K., 409

- Isaaks, J. A., 33
 Island biogeography, 83
 Isopods
 microbial symbiosis and
 fermentation in, 115
Isoxya
 stabilimenta of, 358
 J
 Jablonski, D., 83-84, 518, 532
 Jaccard, P., 525
 Jackknifing, 148
 Jaenike, J., 243-64
 James, F. C., 129-59, 310-11
 James, R., 230
 Jannasch, H. W., 374
 Janson, C. H., 402
 Janzen, D. H., 254, 262
 Johnson, C. N., 42, 467
 Johnson, M. L., 449-73, 469
 Jones, W. T., 451, 466, 469,
 472
 Jumars, P. A., 93-122, 229
 K
 Kaesler, R. L., 305
 Kangaroo rats
 dispersal distance in, 472
 dispersal of
 habitat saturation and, 469
 Karlin, S., 37, 46, 462
 Keeler, K. H., 105, 107, 110,
 113
 Keeling, C. D., 176
 Kempton, R. A., 130
 Kent, A. C., 233
 Kiaman Long Reversed Super-
 chron, 80
 Kidwell, S. M., 522
 Kiester, A. R., 414
 Killifish
 infaunal abundances and, 233
 Kincaid, D. T., 304
 Kinkajous
 pollination by, 402
 Kitchell, J. A., 516, 530
 Kluge, A. G., 58, 60
 Kneib, R. T., 233
 Knoll, A. H., 527
 Kolman, W., 24-25, 27, 30-31
 Krebs, J. R., 45
 Kress, W. J., 406
 Krohne, D. T., 469
 Kudzu
 elevated carbon dioxide levels
 and, 189
 Kuno, E., 461
 L
 Lamoral, B. H., 347
 Larson, A., 545
Latrodectus
 web designs of, 343
Latrodectus geometricus
 web designs of, 343
 Lauder, G. V., 317-35
 Lauraceae
 pollination of, 405
 Learning
 host use of insects and, 248-
 49
 Lecythidaceae
 pollination of, 403, 410
Ledum palustre
 elevated carbon dioxide levels
 and, 178
 Lehman, J. T., 107, 110
 Lemmings
 sex ratios in
 female-based, 40-41
 Lemuroidea, 205
 Lemurs, 198-99
 pollination by, 402
 Lennartz, M. R., 44
 Lenski, R. E., 380
Lepidophyma flavimaculatum,
 58
 Lepidoptera
 diet breadth of, 256-57
 oviposition behavior of, 256
 competition and, 260
 host preferences and, 252
 pollination by, 411
Leptochelia dubia
 sediment-mediated interactions
 of, 227
 Leptodactylidae, 59
 Lessard, S., 37, 46
Leucauge
 orbs of
 spiral lines in, 347
Leucauge mariana
 attack behavior of, 353
 horizontal orbs of
 retention times in, 356
 Leuze, C. C. K., 469
 Levi, H. W., 342, 344
 Levin, B. R., 9, 388
 Levin, L. A., 222
 Levin, S. A., 458
 Levins, R., 252
 Levinton, J. S., 224
 Lewis, D., 28, 46
 Life
 history of
 fossil record and, 510-12
 Linear discriminant function
 analysis, 139-41
 objectives and limitations of,
 155-56
 Linear structural analysis, 144
 Linyphiidae
 webs of, 343
 liquid glue in, 344
 Lions
 sex ratios in
 male-biased, 43
 Lipids
 plant storage of, 430
Liquidambar styraciflua
 elevated carbon dioxide levels
 and, 184-85
Liriomyza sativae
 oviposition preference of
 offspring performance and,
 258
 Lizards
 gekkonoid
 area cladogram of, 60
 nocturnal
 communities of, 61-62
 competition among, 63-
 64
 history of, 59-61
 species densities of, 61
 taxonomic diversity of, 58-
 59
 Lobloby pine
 elevated carbon dioxide levels
 and, 184-85
 Loglinear analysis, 145
 objectives and limitations of,
 157
 Lohmann, G. P., 304, 307
 Loline alkaloids
 endophyte-infected grasses
 and, 285-86
 Lolitrems
 endophyte-infected grasses
 and, 285-86
Lolium
 endophyte infection of,
 286
Lolium perenne
 Acremonium endophyte infec-
 tion of, 286
 Lomnicki, A., 459
Lonicera japonica
 elevated carbon dioxide levels
 and, 189
 Loop analysis
 bacteria-detrivore interactions
 and, 96
 Lorisioidea, 205
 Lotem, A., 494, 499
 Lotka-Volterra equations
 bacteria-detrivore interactions
 and, 96
Lubinella
 stabilimenta of, 358
 Luckinbill, L. S., 380
 Luczak, J., 356
Lupinus texensis
 flowering of
 elevated carbon dioxide
 levels and, 172
 Luxmoore, R. J., 177

- Lycanids
 host specialization in
 natural enemies and, 257
- Lycosidae
 webs of, 343
- Lyell, C., 509
- M**
- Mabea occidentalis*
 pollination of, 402
- Mabuya*, 59
- Macaques
 sex allocation in
 male-biased, 42
- MacArthur, R. H., 18, 83, 252
- MacClade, 327
- MacLeod, N., 516, 530
- Macoma balthica*
 sediment-mediated interactions
 of, 227
- Macoma baltica*
 competitive interactions of,
 223-24
- Macroalgae, 512
- Macrogradungula*
 webs of, 360
- Macrolepidoptera
 diet breadth in
 body size and, 262
 host specificity of, 261
- Maeda, N., 205, 208
- Malmgren, B. A., 307
- Mammalian herbivory
 endophyte-infected grasses
 and, 284
- Mammals
 effective population size for,
 389
- feeding systems in
 mechanical models of, 327-
 28
- insectivorous, 64
- nonflying
 pollination by, 402
- nonsynonymous to syn-
 onymous nucleotide
 changes in
 ratio of, 389
- pectoral girdles of
 linear discriminant function
 analysis and, 140-41
- sex allocation theory for, 13-
 51
- Mangel, M., 249
- Mangora*
 attack behavior of, 353
- Mann, K. H., 116
- Marantaceae
 pollination of, 403
- Margaritz, M., 80
- Marine detritivore guts
 physico-chemical conditions
 of, 104
- Marine faunas, 530-33
 ecological integrity of, 531-32
- Marine organisms
 taxonomic diversity in, 512-
 25
- Marine soft-sediment communi-
 ties, 221-35
 competition in, 222-30
 exploitative, 223-25
 complex trophic interactions
 in, 233
 direct interactions in, 222-23
 predation in, 230-34
 browsing, 232-33
 epibenthic, 230-31
 infaunal, 231-32
 refuges from, 233-34
 sediment-mediated interactions
 in, 225-27
- Marks, J. S., 466
- Marquis, R. J., 285
- Marsupials
 sex allocation in
 adaptive variation in, 50
- Mass extinctions
 Cretaceous-Tertiary, 521
 global diversification and,
 530
 global refrigeration and, 518
 Permo-Triassic, 520
 role of, 524
 See also Permian mass extinc-
 tion
- Mattson, W. B., 262
- Maurer, D., 228
- May, R. M., 454-58, 468
- Mayfly larvae
 microbial symbiosis and
 fermentation in, 115
- Maynard Smith, J., 1-11, 34-
 36, 38, 45, 454
- Mayr, E., 320
- McCulloch, C. E., 129-59
- McGehee, R., 386
- McGinley, M. A., 31, 33
- McGregor, J., 462
- McPeck, V., 458
- Megachilidae
 pollination by, 403
- Megadermatids
 feeding strategy of, 64
- Melastomataceae
 pollination of, 403
- Meliaceae
 pollination of, 404
- Melica decumbens*
 endophyte infection of, 291
- Melospiza melodia*
 dispersal of
 reproduction and, 469
- Mendeleyev, 3
- Mercenaria mercenaria*
 sediment-mediated interactions
 of, 225
- Metabolic control theory
 lactose pathway in *Es-
 cherichia coli* and, 374
- Metabus*
 horizontal orbs of, 354
- Metabus gravidus*
 orbs of
 prey escape and, 348
- Metazygia*
 vertical webs of
 retention times in, 356
- Metazygia gregalis*
 webs of
 prey retention and, 357
- Metepeira*
 orbs of
 prey escape and, 348
 webs of
 wind damage and, 351
- Metz, J. A. J., 461
- Miagrammopes*
 webs of, 359-60
- prey acquisition and, 352
 zig-zags in, 346
- Microthema*
 attack behavior of, 353
 frame silk of, 352
 orbs of
 tensions in, 351
 webs of
 wind damage and, 351
- Microbial digestion, 98-101
- Microhylidae, 59
- Microthema gracilis*
 orbs of
 prey escape and, 348
- Microtus*
 populations of
 dispersal in, 460
- Microtus arvalis*
 dispersing
 survival of, 469
- Microtus ochrogaster*
 dispersing
 survival of, 469-70
- Migration
 definition of, 451
- Milkman, R., 4
- Miller, D. C., 110
- Miller, H., 175
- Miller, W., 549
- Millipedes
 microbial symbiosis and
 fermentation in, 115
- Mimosaceae
 pollination of, 401, 404
- Mindell, D. P., 541-60
- Mineral ions
 plant storage of, 432

- Mites
 host preferences of
 negative genetic correlations in, 253
 Mitter, C., 243, 262
 Miyamoto, M. M., 197-213, 557
 Mohler, J. D., 18
 Molluscs
 end-Cretaceous mass extinction and, 84-85
 microbial symbiosis and fermentation in, 115
 Permian mass extinction and, 72-73
 Pleistocene record of, 512
 shell growth in
 spiral model for, 302
 Mommensen, T. P., 329
 Monkeys
 pollination by, 402
 Montane forests
 pollination systems in, 408-9
 Moody, M., 462
 Mooney, H. A., 423-41
 Moore, J., 465
 Moores, E. M., 84
 Moreno, G., 261
 Morphometrics, 299-312
 data acquisition in, 300-1
 data analysis in, 306-10
 geometrical methods of, 308-10
 multivariate statistical methods of, 307-8
 feature extraction in, 301-6
 landmark data in, 302-4
 multivariate, 153-58
 outline data in, 304-6
 Q-mode factor analysis in, 144
 size in, 310-12
 Morris, D. W., 467
 Moser, H., 378
 Mosimann, J. E., 154, 310-11
 Mosteller, F., 135
 Moths
 host preferences of
 negative genetic correlations in, 253
 host specificity of, 261
 pollination by, 404-5
 Motro, U., 456, 461-62
 Mount, J. F., 532
 Multiple logistic regression, 144-45
 objectives and limitations of, 157
 Multiple regression, 137-39
 objectives and limitations of, 155
 Multivariate analysis, 129-59
 applications of, 130
 methods of, 133-48
 morphometrics and, 307-8
 objectives and limitations of, 131
 role in research, 132-33
 Multivariate analysis of variance, 139
 objectives and limitations of, 155
 Murray, B. G. Jr., 459
 Musaceae
 pollination of, 403
 Muscle
 functional data on, 319
 structural data on, 318-19
 Mutation rate
 selection for, 391-92
Mycodrosophila claytoni
 diet breadth of, 256
 Mycorrhizal colonization
 elevated carbon dioxide levels and, 187-88
 Myers, J. H., 28, 31, 45
 Myers, W. W., 549
 Mynahs
 colonizing populations of
 Roger's genetic distances among, 143
 Myobatrachidae, 59
Myocaster coypus
 sex allocation in, 49
Myopus schisticolor
 sex ratios in
 female-biased, 40-41
Myriocarpa longipes
 elevated carbon dioxide levels and, 186-87
Myriogenospora, 276
 grasses infected by, 278
 Myristicaceae
 pollination of, 405-6
 Mysids
 cellulose digestion in, 116
Mysmena
 orbs of, 360
 Mysmenids
 horizontal orbs of, 354
Mytilus edulis
 electromorph groups of
 linear discriminant function analysis and, 153
Myzus persicae
 host reference of
 offspring performance and, 258-59
 N
 Natural selection
 in bacteria, 373-94
 laboratory environments for, 374-77
 dispersal and, 472
 elevated carbon dioxide levels and, 171-72
 male:female ratio and, 13, 15-17
 sex allocation among families and, 24-25
Neisseria
 PBP2B gene in
 mean sequence divergence for, 9
 mosaic structure of, 7-8
 penicillin resistance in, 2
Neisseria flavescens, 7
Neisseria gonorrhoeae
 penicillin resistance in, 6-7
Neisseria lactamica, 7
Neisseria meningitidis
 penicillin resistance in, 6-7
Neisseria polysaccharae, 7
 Nematodes
 reduced populations of
 endophyte infection and, 285
 Nemertean
 predation by, 231-32
Nephila
 orb designs of, 359
 prey of, 349
 webs of
 prey retention and, 357
 yellow orbs of, 344
Nephila clavipes
 feeding behavior of, 357
Nephila malculata
 orbs of
 prey escape and, 348
 Nephilinae
 orb construction of, 345
Nephys caeca
 predation by, 232
Nephys hombergii
 predation by, 232
Nephys incisa
 infaunal prey of, 232
Nereis diversicolor
 direct interactions of, 222
 predation by, 232
Nereis virens
 predation by, 231-32
 Niklas, K. J., 309, 527-28
 Nilsson, L. A., 404
 Nitrate
 plant storage of, 433
 Nitrogen
 plant storage of, 430-31
 Nitrogen fixation
 elevated carbon dioxide levels and, 187-88
 evolution of, 2-3
 Noctuididae
 pollination by, 404

- Noctuid moths
 diet breadth in
 frequency distribution of, 261
- Nocturnal insectivores
 biogeography of, 57-67
- Nodulation
 elevated carbon dioxide levels and, 187-88
- Nonmetric multidimensional scaling, 147
 objectives and limitations of, 158
- Novitsky, J. A., 107
- Nucleotide sequencing
 ribosomal RNA and, 545-46
- Nuctenea*
 webs of
 tensions on radii in, 351
- Numerical taxonomy
 Q-mode factor analysis in, 144
- O
- Oberbauer, S. F., 178
- Ochroma lagopus*
 elevated carbon dioxide levels and, 186
- Ochroma pyramidalis*
 pollination of, 402
- Oechel, W. C., 176, 178
- Oecobiids
 webs of
 nonsticky lines in, 347
- Oedipus hypothesis
 dispersal and, 466
- Oeller, P. W., 383-84
- Oenothera laniolata*
 flowering of
 elevated carbon dioxide levels and, 172
- Officer, C. B., 521
- Oil-field succession
 elevated carbon dioxide levels and, 183
- Olgunius*
 web designs of, 359
- Olive, C., 353
- Oliver, J. S., 226, 230
- Olshan, A. F., 309
- Opler, P. A., 401
- Opossums
 pollination by, 402
- Optimal digestion theory
 detritivores and, 97-98
- Optimization theory
 sex allocation and, 45
- Orchidaceae
 pollination of, 403
- Orchids
 pollination of, 410
- Order primates, 198-99
- Ordination
 plant ecology and, 152-53
- Organic matter
 primary decomposers of, 118-21
- Organismal design
 principles of, 331-34
- Orthopterans
 as common prey items, 64
- Oxyopidae
 web designs of, 343
- P
- Pachycactylus*, 60
- Packer, C., 43, 465
- Palaemonetes pugio*
 predation of, 233
- Palmae
 pollination of, 405
- Pangea
 formation of, 77-78
- Panicum agrostoides*
 endophyte infection of, 287
- Panogena lingens*
 pollination by, 410
- Papilio glaucus*
 host specificity of, 261
- Papilio machaon*
 diet breadth of, 256
 narrow, 252
- Papilionids
 host specificity of, 261
- Papilio oregonius*
 oviposition behavior of
 genetic variation in, 248
- Paquin, C. E., 383
- Paranemertes peregrina*
 predation by, 232
- Paraplectanoides*
 webs of, 360
- Parasites
 counterdefenses of
 host defenses and, 485-92
 generalists vs. specialists, 483
- Parasitism
 avian brood, 481-502
- Parkia
 pollination by, 401
- Pasciak, W. J., 100
- Pasilobus*
 frame silk of, 352
 low-shear radius-sticky spiral junctions of, 352
 reduced orbs of
 sticky "spiral" construction in, 360
- Passerines
 parasites of, 483
 pollination by, 403
- Passifloraceae
 pollination by, 401
- Patterson, D. T., 181
- PAUP, 327, 547
- Payne, R. B., 482
- Pease, C. M., 33
- Pelobatidae, 59
- Penicillin resistance, 2, 6-7
- Penny, D., 547
- Perry, D. L., 115
- Pentaclethra macrolaba*
 elevated carbon dioxide levels and, 186
- Peramine
 endophyte-infected grasses and, 285-86
- Percopterid ferns
 Permian mass extinction and, 75
- Periodic selection
 in bacteria, 377-85
 baroque model of, 384-85
 batch culture and, 379-81
 biotic interactions and, 385
 classical model of, 378-79
 continuous culture and, 381-84
 environmental complexity and, 385-88
- Permian mass extinction, 69-88
 evolutionary significance of, 84-87
 marine, 70-74
 mechanisms of, 81-84
 environmental, 82-83
 extraterrestrial, 81-82
 tectonically induced, 83-84
 physical environment and, 76-81
 severity of, 515
 terrestrial floral, 75
 terrestrial vertebrate, 74-75
- Permo-Triassic mass extinction, 520
- Peromyscus leucopus*
 dispersing
 survival of, 469
- Perry, D. R., 411
- Peterson, C. H., 223
- Petri dish
 natural selection in bacteria and, 374-75
- Phanerozoic
 Metazoan diversity in, 514-16
- Phenetic taxonomy
 cluster analysis and, 147-48
- Phenolics
 carbon surplus in plants and, 430
- Phenotypic variation
 sex allocation and, 44-50
- Philippi, T. E., 253
- Philopatry
 definition of, 451
 inbreeding and, 463
- Phlox drummondii*
 floral display of

- carbon dioxide concentration and, 175
- Pholidae
 - webs of, 343
 - liquid glue in, 344
- Pholcus phalangioides*
 - webs of, 360
- Phonognatha*
 - orb designs of, 359
- Phoronopsis viridis*
 - sediment-mediated interactions of, 226-27
- Phosphorus
 - plant storage of, 431-32
- Photosynthesis
 - elevated carbon dioxide levels and, 168-69
 - endophyte infection and, 283
 - nitrate reduction and, 433
 - starch storage and, 430
- Phratra vitellinae*
 - susceptibility to attack, 255
- Phyllodactylus*, 60
- Phyllosotomatids
 - feeding strategy of, 64
- Phylogenetic analysis
 - primate β -gene sequences and, 202-5
 - ribosomal RNAs and, 546-59
- Phylogenetic tree, 2-3
- Phytophagous insects
 - host specialization in, 243-64
 - diet breadth and, 261-63
 - factors affecting, 251-61
 - intraspecific variation in, 246-51
 - models of, 244-46
- Pianka, E. R., 57-67
- Picea albes*
 - water storage in, 433
- Piechocki, R., 392
- Pielou, E. C., 144
- Pieris rapae*
 - oviposition behavior of
 - physiological state and, 250
- Pinus echinata*
 - elevated carbon dioxide levels and, 187-88
- Pinus strobus*
 - elevated carbon dioxide levels and, 185
- Pinus taeda*
 - elevated carbon dioxide levels and, 184-85
- Piper auritum*
 - elevated carbon dioxide levels and, 186-87
- Pipeline swallowtail
 - oviposition behavior of
 - learning and, 248-49
- Pisauridae
 - web designs of, 343
- Pisaurina*
 - double sheets of, 360
- Plantago lanceolata*
 - carbon dioxide enrichment and, 175
- Plante, C. J., 93-122
- Plant ecology
 - ordination in, 152-53
 - indirect, 146
- Plant-herbivore interactions
 - elevated carbon dioxide levels and, 188
- Plant-pollinator interactions
 - tropical, 399-417
 - community stability and, 414-16
 - pollen flow in, 411-13
 - specialization in, 410-11
- Plants
 - diversity of
 - history of, 525-27
 - elevated carbon dioxide levels and, 168-73
 - terrestrial
 - Permian mass extinction and, 75
- Plant storage, 423-41
 - adaptive patterns in, 439
 - daily, 432-33
 - definition of, 424-27
 - economic analogy of, 427-30
 - recovery from catastrophe and, 436-37
 - reproduction and, 437-39
 - reserve, 428-29
 - seasonal, 434-36
 - short-term fluctuations in, 433-34
- Plant storage compounds, 430-32
- Plastids
 - reserve storage in, 430
- Plate tectonics
 - global diversification and, 529-30
- Platyrrhini, 205
- Ploceus cucullatus*
 - egg rejection by, 488
- Poa*
 - endophyte infection of, 286
- Poecilopachys*
 - reduced orbs of
 - sticky "spiral" construction in, 360
- Poecilopalchys*
 - low-shear radius-sticky spiral junctions of, 352
- Poleneia*
 - "sawtooth" orbs of, 359
 - webs of
 - zig-zags in, 346
- Pollen flow
 - in tropical rainforests, 411-13
- Pollination
 - modes in tropical rainforests, 400-9
- diversity of, 400-6
- spatial distribution of, 406-7
- speciation and, 413-14
- Polychaetes
 - interactions among, 222
 - larvae/juveniles of
 - survivorship of, 228
 - predation by, 231-32
- Polydora ligni*
 - sediment-mediated interactions of, 226
- Polygonum pensylvanicum*
 - carbon dioxide responses of, 175
 - elevated carbon dioxide levels and, 182
- Pooidae
 - endophytes infecting, 278
- Portia*
 - webs of, 361
- Portunid crabs
 - epibenthic predation by, 231
- Potassium
 - plant storage of, 432
- Prairie dogs
 - dispersing
 - survival rate for, 469
- Prairie voles
 - dispersing
 - survival of, 469-70
- Prance, G. T., 65, 401
- Predation
 - browsing, 232-33
 - epibenthic, 230-31
 - marine soft-sediment communities and, 230-34
 - refuges from, 233-34
- Predator-prey interactions
 - global diversification and, 530
- Predators
 - infaunal, 231-32
- Prentice, H. C., 304-5
- Price, G. A., 456
- Price, P. W., 260
- Primate β -gene clusters, 199-202
- Primate β -gene sequences
 - phylogenetic analysis of, 202-5
- Primates
 - anthropoid
 - SINES and LINEs of, 210-12
 - DNA phylogenies of, 203
 - evolution of
 - DNA systematics and, 197-213
 - extreme sex ratios in
 - competition between females and, 42
 - order, 198-99
 - pectoral girdles of

- linear discriminant function
analysis and, 140-41
phylogenetic classification of,
205-7
Principal components analysis,
141-43
objectives and limitations of,
156
Principal coordinates analysis,
143
objectives and limitations of,
156
Procrustes distance coefficient,
308-9
Productivity
ecosystem
elevated carbon dioxide
levels and, 176-77
Prograndungula
webs of, 343, 360
Prograndungula carraiensis
webs of
spacing of sticky lines in,
346
Prokaryotes
clonal pattern of variation in,
4
evolution of, 1-11
Proline
as overwinter nitrogen re-
serves, 426
Protothaca staminea
competitive interactions of,
223
Prunus serotina
elevated carbon dioxide levels
and, 185
Psechridae
web designs of, 343
Psechrus
exploratory tapping in,
346
webs of
zig-zags in, 346
Pseudopolydora kempii
sediment-mediated interactions
of, 227
Pseudopolydora paucibranchiata
dispersion pattern of
maintenance of, 222
Pteridophytes
Permian mass extinction and,
75
Pteridosperms
Permian mass extinction and,
75
Pteronarcys
cellulose digestion in, 116
Pueraria lobata
elevated carbon dioxide levels
and, 189
Pusey, A. E., 43
Pygopodidae, 58, 60
Pygospio elegans
sediment-mediated interactions
of, 227
Pyrgus scriptura
narrow diet breadth of, 252
Q
Q-mode factor analysis, 144,
530
Quammen, M. L., 231
Quararibea cordata
pollination of, 402
Quercus alba
elevated carbon dioxide levels
and, 187-88
R
Raff, E. C., 333
Rafflesia
pollination of, 405-6
Ranidae, 59
Raup, D. M., 85, 302, 515
Rauscher, M. D., 245, 253, 259-
60
Raven, P. H., 402
Ray-finned fishes
feeding/respiratory systems of
evolution of function in,
330
Reavey, D., 263
Reciprocal averaging, 145-46
Recycling, 424-25, 435-36
economics of, 429-30
Red deer
population allocation ratio in
male bias in, 34-36
Redmond, R. L., 466
Reekie, E. G., 172
Regenerating ecosystems
elevated carbon dioxide levels
and, 180
Reilly, S. M., 330
Reise, K., 226, 231-32
Rencher, A. C., 135
Reproduction
plant storage and, 437-39
Reserve formation, 424-25
Resistant-fit theta rho analysis,
309
Resource competition
sex-biased dispersal and, 465
Restriction endonuclease site
mapping
ribosomal RNA and, 545
Reyment, R. A., 144
Rhacophoridae, 59
Rhagoletis buzzatii
oviposition behavior of
learning and, 249
Rhagoletis pomonella
host acceptance of, 247
oviposition behavior of
learning and, 249
physiological state and, 250
Rheposynius abronius
emigration of, 232
Rhizomatous plants
reserve storage in, 435
Rhoads, D. C., 225
Ribosomal RNAs
analysis of
molecular, 545-46
phylogenetic, 546-48
bacterial evolution and, 393-
94
evolution and, 541-60
evolutionary rate heterogene-
ity among, 554-59
nucleotide sequencing of,
545-46
restriction endonuclease site
mapping of, 545
structure and organization of,
542-45
Ribulose bis-phosphate carboxy-
lase (RUBISCO)
nitrogen storage in leaves
and, 426
Ricklefs, R. E., 29
Riechert, S., 356
R-mode analysis, 144
Robertson, R. M., 330
Rodents
pollination by, 402
sex allocation in
adaptive variation in, 50
Roe, P., 232
Roff, D. A., 461
Rohlf, F. J., 299-312
Roitberg, B. D., 249
Ronan, T. E. Jr., 227
Rönn, C., 232
Roskies, R. Z., 304-5
Rothstein, S. I., 481-502
Roubik, D. W., 409
rRNAs
See Ribosomal RNAs
Rubiaceae
pollination of, 403-5
Rufous hornoro
egg rejection by, 489
Ryegrass
Acremonium endophyte infec-
tion of, 286
Ryman, N., 464
S
Saccharomyces cerevisiae
periodic selection in, 382-83
Salamanders
feeding/respiratory systems of
evolution of function in,
330

- Salmonella*
penicillin resistance in, 2
Salmonella typhimurium
amino acid substitution in,
389
- Salticids
webs of, 361
- Sampson, K., 289
- Sampson, P. D., 309
- Sandpipers
prey of, 233
- Sanguinolaria nuttallii*
sediment-mediated interactions
of, 226-27
- Sanguinolari nuttallii*
competitive interactions of,
223
- Sapotaceae
pollination of, 403
- Saturniids
host specificity of, 261
- Sauer, A., 26
- Savage, J. M., 60
- Sawflies
oviposition behavior of
competition and, 260
host preferences and, 252
- Sawyer, S., 10
- Schemske, D. W., 411, 417
- Schindewolf, O., 82
- Schneider, R. B., 304
- Schrader, P. B., 232
- Schubert, A., 232
- Schulze, E. D., 423-41
- Scirpus olneyi*
elevated carbon dioxide levels
and, 179
- Scoloderus*
webs of, 355
sticky lines in, 349
- Sea level
global marine diversity and,
519-20
- Selander, R. K., 4, 388
- Senna multijuga*
elevated carbon dioxide levels
and, 186-87
- Sepkoski, J. J. Jr., 85, 515-16,
524-25, 530-34
- Sex allocation, 13-51
asymmetric relatedness and,
46-48
biased
kin competition and, 21-24
Charnov's nonlinear model
for, 18-20
competition among siblings
and, 41-43
evolutionary stable strategy
theory and, 45
family size and
Myers's model of, 28
Fisher's theory of, 15-17
gene frequency dynamics and,
46
genetic control of, 20-21
homeostasis hypothesis of,
25-26
individual and population
Frank's model for, 38-40
male and female costs and,
32
as neutral trait, 24-25
parental resources and, 26-27,
31-32
variation in
among families, 24-27, 34-
40
mechanisms of, 48-50
phenotypic, 44-45
- Sex allocation theory
development of, 27-44
- Sex chromosomes
inheritance of
haplodiploid, 47-48
population cycles in lemmings
and, 40-41
- Sex ratios
Williams's analysis of, 28-31
- Sha J., 291
- Shaw, R. F., 18
- Shear, W. A., 343
- Sheehan, P. M., 532
- Shields, W. M., 451, 463-64
- Shorea*
pollination of, 409
- Shorebirds
epibenthic predation by, 231
- Sibly, R. M., 95
- Sibueta, M., 113
- Siegel, A. F., 308
- Signor, P. W., 509-35
- Signor-Lipps effect, 70, 73
- Simaroubeaceae
pollination of, 405
- Similarity, 149
- Singer, M. C., 245, 258
- Sinsabaugh, R. L., 116
- Sionit, N., 184
- Sipunculids
nitrogenous waste excretion
and egestion in, 117-
18
- Size dimorphism
sex ratio trends and, 42
- Slatyer, R. O., 229
- Slice, D., 309
- Sloan, A. D., 300
- Smith, C. C., 29, 31
- Smith, K. G., 144
- Smith, S. P., 180
- Sneath, P. H. A., 308, 310
- Snow geese
population attributes in
loglinear analysis and, 145
- Social parasitism, 481-502
- Soil microorganism/plant root
interactions
elevated carbon dioxide levels
and, 187-88
- Sokal, R. R., 148
- Solanaceae
pollination of, 404
- Somers, K. M., 311
- Song sparrows
dispersal of
reproduction and, 469
- Southeast Asian lowland rain-
forests
pollination systems in, 409
- Sparrowhawks
mother-offspring dispersal dis-
tance in, 472
- Spartina patens*
elevated carbon dioxide levels
and, 179
- Speciation
pollination and, 413-14
- Species diversity
regional
trends in, 524-25
- Species ranges
elevated carbon dioxide levels
and, 188-89
- Spermophilus columbianus*
dispersing
survival rate for, 469
- Sphaerodactylini*, 58
- Sphenopholis*
endophyte infection of, 286
- Sphingid moths
host specificity of, 261
- Sphinx moths
pollination by, 404
- Spider monkeys
sex allocation in
female-biased, 42
- Spiders
attack behavior of
orb designs and, 353
horizontal orbs of, 353-54
- Spider webs, 341-61
design of
taxonomic usefulness of,
342-44
differential selectivity of, 354-
55
function of
spider size and, 357-58
geometry of
effects of, 348-52
monophyly of orb design and,
345-48
newly discovered forms of,
359-61
phylogenetic determination
and, 344-45
physical properties of silk
and, 352

- prey diversity and, 355-57
 stabilimenta, 358-59
Spirillum
 mixed substrate utilization by, 386
Sporobolus poiretti
 endophyte infection of, 288, 291
 Spruce grouse
 dispersal distance in, 472
 Stamp, N. E., 259
 Stanley, S. M., 82, 518
 Starch
 plant storage of, 430, 432-33
 Starrett, A., 411
Stegodyphus
 aerial planar sheets of, 360
 Stenseth, N. C., 457
 Stephens, D. W., 45
 Sterculiaceae
 pollination of, 405
 Stiles, F. G., 400, 403, 416
Stipa
 endophyte infection of, 286
 Stiphidiidae
 web designs of, 343
 Stiven, A. E., 233
 Stoltzfus, A., 4, 10
 Stomatal conductance
 elevated carbon dioxide levels and, 170-71
 Strain, B. R., 176, 183, 184
 Strauss, R. E., 300, 302
 Strepsirhines
 monophyly of, 198, 204
 Strepsirhini
 superfamilies of, 205
Streptococcus pneumoniae
 penicillin resistance of, 5-6
 Strong, D. L., 260
 Succession
 elevated carbon dioxide levels and, 180-83
 Sugar beet
 storage reserves in, 434
 Sunfishes
 feeding systems of
 morphology of, 330
 Suspension-feeders
 competitive interactions among, 223-24
 Sussman, R. W., 402
 Sweetgum
 elevated carbon dioxide levels and, 184-85
 Swingland, I. R., 37
 Swynnerton, C. F. M., 488
 Symphytognathids
 horizontal orbs of, 354
 Synapomorphy, 323
 Systematics
 functional morphology and, 317-35
 multivariate analysis in, 129-59
 special problems in, 149-58
 Szlep, R., 347
- T
- Tamaki, A., 226
 Tannins
 carbon surplus in plants and, 430
 defensive and metabolic roles of, 426
 Tappan, H., 83
Tarentola, 60
Tarentola americana, 64
 Tarsiers, 198
 Tarsiiformes, 205
Tawuia, 512
 Taxa
 evolutionary rate heterogeneity among, 548-50
 Taylor, P. D., 26, 43, 46, 456-57
 Teague, R., 462
Tetragnatha elongata
 wide-meshed orbs of, 349
Tetragnatha extensa
 wide-meshed orbs of, 349
Tetragnatha laboriosa
 wide-meshed orbs of, 349
Tetragnatha praedonia
 wide-meshed orbs of, 349
 Temperate forests
 elevated carbon dioxide levels and, 185-86
 Temperature
 elevated carbon dioxide levels and
 plant life and, 174-75
 Tengellidae
 web designs of, 343
 Tephritid fly
 oviposition behavior of
 physiological state and, 250
 Teratoscincinae, 58
 Termites
 microbial symbiosis and
 fermentation in, 115
 Tephritid flies
 oviposition behavior of
 competition and, 260
 Terrestrial animals
 diversity of
 history of, 527-29
Tetragnatha
 horizontal orbs of, 354
 webs of
 wind damage and, 351
Tetragnatha elongata
 orbs of
 prey escape and, 348
- Tetragnatha lauta*
 web designs of, 359
Tetragnatha praedonia
 orbs of
 prey escape and, 348
 Tetrapods
 terrestrial
 Permian mass extinction and, 74-75
Thecadactylus, 60
Thecadactylus rapicauda, 59, 64
 Therapsids
 Permian mass extinction and, 75
 Theridiidae
 web designs of, 343
Theridion purcelli
 web design of, 343
 Theridiosomatids
 web characters of, 342
Theridium
 webs of
 nonsticky lines in, 347
Thiobacillus A2
 mixed substrate utilization by, 386
Thiobacillus neopolitanus
 mixed substrate utilization by, 386
 Thompson, D. W., 309
 Thompson, J. N., 256
 Thrips
 pollination by, 406, 409
 Tiering, 523
 Tiffney, B. H., 527
Titanoeca
 exploratory tapping in, 346
 webs of, 343
 zig-zags in, 346
 Titus, K., 140
 Tobacco budworm
 host acceptance of, 247
 Tobacco hookworm
 metamorphosis in
 conservatism in motor patterns in, 330
 Tobler, W. R., 309
 Tolley, L. C., 184
Transennella tantilla
 sediment-mediated interactions of, 227
 Travis, J., 139
Travisia foetida
 foregut diverticular in, 115
 Treehoppers
 diet breadth in, 257
 frequency distribution of, 261
Tribolium confusum
 group selection and, 468
Trichospermum mexicanum
 elevated carbon dioxide levels and, 186-87

- Trivers, R. L., 13-14, 25-28,
34, 36, 45, 50
- Troeberner, W., 392
- Trophic group amensalism hy-
pothesis, 228
- Tropical montane rainforests
pollination systems in, 408-9
- Tropical rainforests
elevated carbon dioxide levels
and, 186-87
modes of pollination in, 400-
9
diversity of, 400-6
spatial distribution of, 406-
7
plant-pollinator interactions
in, 399-417
specialization in, 410-11
pollen flow in, 411-13
- Truman, J. W., 330
- Tsuga canadensis*
elevated carbon dioxide levels
and, 185
- Tube-builders
sediment-mediated interactions
of, 225-26
- Tukey, J. W., 135
- Turelli, M., 251
- Tyler, S., 323-25, 329
- Tylorida*
ladder web of, 355
- U
- Uloboridae
orb construction of, 345
webs of, 342-43
zig-zags in, 346
- Uloborus*
stabilimenta of, 358
webs of
wind damage and, 351
- Urchins
microbial symbiosis and
fermentation in, 115
- Urea synthesis
vertebrate
phylogenetic pattern of,
329-30
- Urtica dioica*
reserve storage in, 435
- V
- Vacuoles
reserve storage in, 430
- Valentine, J. W., 84, 512, 525,
533
- Van Valen, L., 452
- Vascular plants
diversity of
history of, 525-27
- Veinus, J., 303
- Vermeij, G. J., 520, 530
- Verner, J., 25-26, 31
- Vertebrates
pollination by, 401-3
ribosomal RNA in, 541-60
terrestrial
fossil record of, 528
Permian mass extinction
and, 74-75
urea synthesis in
phylogenetic pattern of,
329-30
- Via, S., 247
- Vicariance biogeography, 59-60
- Village weaver
egg rejection by, 488
- Virnstien, R. W., 230
- Vochysiaceae
pollination of, 405
- von Wahlert, G., 319
- W
- Wagneriana*
webs of
prey acquisition and, 351
- Walsh, P. J., 329
- Wartenberg, D., 146
- Waser, P. M., 451, 465-66,
469, 472
- Wasps
female-biased sex ratios of,
21
pollination by, 405
- Wasserman, S. S., 262
- Water
plant storage of, 433
- Waters, J. A., 305
- Waterson, G. A., 388
- Water voles
dispersing
predation of, 469
- Watzin, M. C., 228
- Weeks, J. C., 330
- Weevils
oviposition behavior of
competition and, 260
- Weinberg, J. R., 226
- Wellington, W. G., 258
- Wendigarda*
low-shear radius-sticky spiral
junctions of, 352
- Wendigarda galapagensis*
webs of, 360
- West-Eberhard, M. J., 413-14
- Wheatcroft, R. A., 114
- White, J. F., 289
- White, R. J., 304-5
- Whitlatch, R. B., 117, 229
- Wiggett, D. R., 469
- Wiklund, C., 252, 256
- Wildlife management
multivariate analysis and,
150-52
- Wilkinson, L., 138
- Willard, D. E., 13-14, 25-28,
34, 36, 45, 50
- Williams, B. K., 140
- Williams, G. C., 25-26, 28-31,
33-34, 45, 47
- Williams, J. G., 228
- Wilson, A. C., 545
- Wilson, E. O., 83
- Wilson, W. H., 221-35
- Wiltse, W. I., 224
- Wimpenny, J. W. T., 97
- Wise, D. H., 356
- Wixia ectypa*
asterisk webs of, 355, 360
- Woese, C. R., 2, 393
- Woodin, S. A., 225, 228-29,
231
- Woodlands
endophyte infection in, 290
- Woodpeckers
red-cockaded
female-biased mortality in,
44
- Woodward, F. I., 170
- Woolfenden, G. E., 466
- Wray, S. M., 183
- Wright, S., 379
- Wulff, R., 175
- Wynne-Edwards, V. C., 452
- X
- Xenobiotics
cometabolism and, 392
- Y
- Yeast
periodic selection in, 382-83
- Yellow birch
elevated carbon dioxide levels
and, 185
- Yonge, C. M., 94
- Young, D. K., 224-25
- Young, M. W., 224
- Yponomeuta* moths
host specificity of, 261
- Z
- Zahn, C. T., 304-5
- Zajac, R. N., 229
- Zingiberaceae
pollination of, 403
- Zostera marina*
sediment-mediated interactions
of, 226